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SOUTHERN ECUADOR AS A HOTBED OF SPECIES EVOLUTION IN FUCHSIA (ONAGRACEAE): FUCHSIA AQUAVIRIDIS, A NEW SPECIES IN THE FUCHSIA LOXENSIS SPECIES GROUP

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Abstract. A new species of *Fuchsia* section *Fuchsia* (Onagraceae) from the Andes of southern Ecuador is described and illustrated. *Fuchsia aquaviridis* P. E. Berry is known from upper elevation cloud forests in and around Podocarpus National Park in Loja Province, where several other rare species of *Fuchsia* also occur. It is part of the *Fuchsia loxensis* species group and is differentiated by its narrowly elliptic and narrowly acute leaves, the apiculate sepals considerably longer than the petals, the canescent young growth, and the erect disposition of the young leaves and buds. Its occurrence and apparent restriction to Loja Province points to this area as a hotbed of evolution in Andean fuchsias.

Studies and collections of plants from southern Ecuador have increased dramatically in the past decade, and many novel plants or new distribution records have been made there. This paper describes a new species of *Fuchsia* that occurs in upper elevation cloud forests in Podocarpus National Park and on the slopes of Cerro Toledo, in Loja Province. Four other species of *Fuchsia* that are endemic to southern Ecuador are also known from this area: *F. campii* P. E. Berry, *F. scherffiana* André, *F. steyermarkii* P. E. Berry, and *F. summa* P. E. Berry (Berry 1982, 1995). All of these taxa belong to the largest section of the genus, section *Fuchsia*, which now includes 65 species. These findings point to the cloud forests of Loja Province as a hotbed of speciation in *Fuchsia* and one of the areas of highest diversity in the genus.

Fuchsia aquaviridis P. E. Berry, sp. nov.—Type: Ecuador. Loja: roadside thicket in cloud forest, road from Yangana to Cerro Toledo, 3000 m, 13 Nov 1988, *P. E. Berry & L. Brako 4641* (holotype: MICH!; isotypes: MO! QCA! US!). Fig. 1.

Frutex 80–120 cm altus, foliis oppositis vel 3-4-verticillatis anguste ellipticis, 3–12 × 1.5–4 cm, margine denticulato, apice anguste acuto, innovationibus canescentibus, stipulis subulatis persistentibus, floribus axillaribus, alabastris erectis, tubo florali 20–30 mm longo, sepalis apiculatis 9–15 mm longis, petalis late ellipticis 8–11 mm longis, 6–9 mm latis.

Well-branched shrub 0.8–1.2 m tall; branches leafy along most of the stem, internodes 5–20 (–60) mm long, lower stems with somewhat protruding leaf scars, young growth conspicuously canescent-strigose. Leaves opposite, 3- or occasionally 4-whorled; blade membranous, elliptic to narrowly elliptic, 30–60 (–120) mm long, (15–) 20–25 (–40) mm wide, acute to narrowly acute at the apex, acute at the base, with whitish strigose trichomes loosely dispersed along the veins on both surfaces, upper surface lustrous dark green, lower surface paler green; margin gland-denticulate with trichomes between the teeth; secondary nerves 7–10 (–12) on either side of

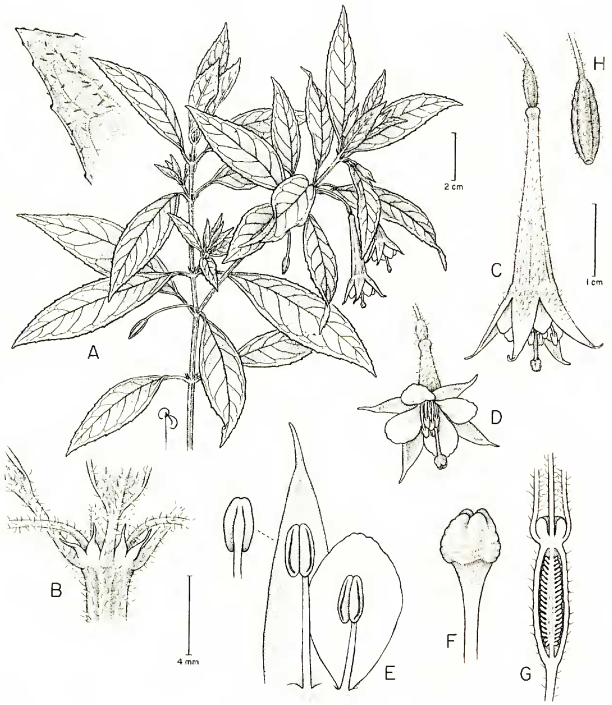

FIG. 1. *Fuchsia aquaviridis*. A. Habit and detail showing distal portion of a leaf. B. Node with a pair of stipules. C. Flower at anthesis. D. Flower shown at an angle from below to show position of petals and sepals at anthesis. E. Enlargement of a sepal, a petal, and stamens opposing them. F. Distal portion of style and stigma. G. Longitudinal section of the ovary and lower portion of the floral tube. (Based on *Berry & Brako 4641*, dried specimens and photographs of living plants).

the midvein; petiole 5–13 (–20) mm long; stipules awl-shaped, 2–2.5 mm long, 0.3–0.5 mm wide, persistent, drying dark. Flowers axillary and pendent in the upper leaf axils, uniformly red, 2 or 3 per node, the young buds canescent and usually held erect by the emerging leaves; pedicel 15–30 mm long; floral tube narrowly funnelform, 20–25 (–30) mm long, 2–2.3 mm wide and slightly bulbous at the base, 4–6 mm wide at the rim, 4- or 8-angled in cross-section, loosely strigose outside, villous in lower half inside; nectary a doughnut-shaped ring ca. 1.5 mm high and 2 mm wide at the base of the tube surrounding the style; ovary lightly 4- or 8-angled, 5–6 mm long, 2–3 mm thick,

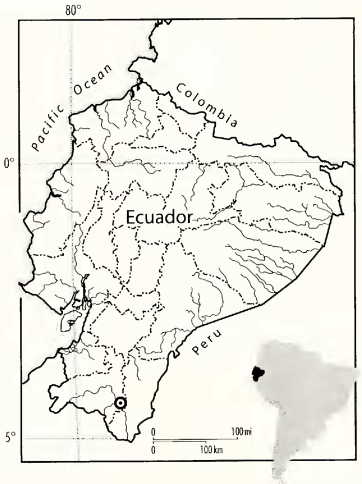

FIG. 2. Distribution of *Fuchsia aquaviridis* in southern Ecuador.

strigose; sepals narrowly lanceolate, apiculate, (9–) 12–15 mm long, 3–5 mm wide at the base, strigose on the outside; petals broadly elliptic to suborbicular, spreading at anthesis, 8–11 mm long, 6–9 mm wide, rounded to mucronate at the apex, cuneate at the base; style red, 28–36 mm long, villous in lower half, stigma whitish pink, capitate, slightly 4-cleft at the apex, ca. 2 mm high by 2 mm wide; filaments 5–6 mm and 3–4 mm long, anthers broadly oblong, ca. 2 mm long and 1.5 mm wide, pollen white at dehiscence. Fruit somewhat 4- or 8- angled before fully mature, ellipsoid, 10–13 mm long, 7–8 mm thick; seeds flattened, semilunar in outline, 1.4–1.7 mm long, ca. 1 mm wide.

Distribution (Fig. 2). In moist thickets in cloud forests, on humid slopes of Cerro Toledo east of Yangana and east of the Nudo de Cajanuma in Parque Nacional Podocarpus, Loja Province, Ecuador; 2850–3100 m.

Additional Specimens Examined. **Ecuador.** Loja: road from Yangana to Cerro Toledo, 3030 m, 13 Nov 1988, *Berry & Brako 4642* (MO, MICH, QCA); 13.5 km from Yangana on road to Cerro Toledo, 2835 m, 16 Sep 1998, *Green & Waters 1061* (MICH); Parque Nacional Podocarpus, above Cajanuma, 2900–3100 m, 19 Jan 1989, *Madsen 85575* (AAU, MO); Parque Nacional Podocarpus, south of Loja, east of Nudo de Cajanuma, 2850–2950 m, 21–22 Feb 1985, *Øllgaard et al. 57879* (AAU); Parque Nacional Podocarpus, above Nudo de Cajanuma, around "Centro de Información," 2800–3000 m, 14–15 May 1988, *Øllgaard et al. 74117* (AAU).

Fuchsia aquaviridis is found quite locally in openings of upper elevation cloud forest in moist substrates. It belongs to the *Fuchsia loxensis* species group (Berry et al. 1982), which is characterized by its short-tubed, axillary flowers and rounded petals. Although this is a complex and variable group that will require further study, *F. aquaviridis* is sufficiently well characterized from related species to justify its separate

recognition. Characters that help separate it from other members of its species group (*F. loxensis* Kunth, *F. hypoleuca* I. M. Johnst., *F. scabriuscula* Benth., *F. steyermarkii* P. E. Berry, and *F. summa* P. E. Berry) include its typical narrowly elliptic and narrowly acute leaves, the apiculate sepals considerably longer than the petals, the canescent young growth, and the erect disposition of the young leaves and flower buds.

The specific epithet is derived from the Latin *aqua* (water) and *viridis* (green), in recognition of a pair of avid Fuchsia enthusiasts who also found this species in the wild, namely, Dave Green and Eileen Waters of London, U.K.

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